

Attachment

SDMS Document ID



2022597



Mary
Goldade/EPR/R8/US
EPA/US@EPA

09/15/03 01:48 PM

To: Jim Christiansen/EPR/R8/USEPA/US@EPA
cc:
Subject: Libby MT: MOD LB-000029 for the flyway doc.

Jim,
Attached is the mod form that clarifies the TEM QC sample requirements we're using at our labs. This can be used for the flyway perimeter air samples.

QC for the PCM should be run as written in the NIOSH 7400 method (field blanks, blind recount same analyst for both investigative and reference slides), proficiency testing by AIHA-NIOSH Proficiency Analytical Testing, microscope adjustments (#10 in NIOSH 7400)

Mary

----- Forwarded by Mary Goldade/EPR/R8/USEPA/US on 09/15/03 12:45 PM

"Autio, Anni"
<AutioAH@cdm.com>
Asbestos' <mobileasbestoslab@emsl.com>, Jeanne Orr
Mahoney <rmahoney@emsl.com>, Rob DeMalo
09/02/03 02:25 PM
LaCerra <clacerra@emsl.com>, ncbatta@battaenv.com, Bob
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cc: "Mark Raney
(raney@volpe.dot.gov)" <raney@volpe.dot.gov>, Mary
Goldade/EPR/R8/USEPA/US@EPA,
"Kwiatkowski, Joseph" <KwiatkowskiJJ@cdm.com>
Subject: Libby MT: MOD
LB-000029

For your reference...and use.

We will be attaching Mark and Mary's approval e-mails to the "final" scanned copy.

Hard copies will be distributed this week.

If you have any questions, please ask.

Thank you.

aa

-----Original Message-----

From: Kwiatkowski, Joseph
Sent: Tuesday, September 02, 2003 4:11 PM
To: Autio, Anni
Subject: MOD000029

Hello Anni,

Here is the electronic copy of MOD000029. I will assemble the hard copies tomorrow.

~Joe

<<LB000029 Signed.pdf>>

Joseph J. Kwiatkowski

Air Quality Scientist

CDM

One Cambridge Place, 50 Hampshire Street

Cambridge, MA 02139

Phone: (617) 452-6737

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Email: kwiatkowskijj@cdm.com(See attached file: LB000029 Signed.pdf)



LB000029 Signed.pdf



Request for Modification

To
Laboratory Activities
LB-000029

Instructions to Requester: E-mail form to contacts at bottom of form for review and approval.

File approved copy with Data Manager (CDM). Data Manager distributes approved forms as follows:

All Lab Applicable forms – copies to: EPA, Volpe, CDM-Denver, All project labs

Individual Lab Applicable forms – copies to: EPA, Volpe, CDM-Denver, Initiating Lab

Method (circle one/those applicable): TEM-AHERA, TEM-ISO 10312, PCM-NIOSH 7400, PLM-NIOSH 9002, EPA/600/R-93/116, ASTM D5755-95, EPA/540/2-90/005a, Other All other TEM methods, including: SOP EPA-LIBBY-03, SOP EPA-LIBBY-07, and EPA/600/R-94/134 (EPA 100.2).

Requester: W.J. Brattin

Title: Technical consultant

Company: Syracuse Research Corporation

Date: 25 August 2003

Description of Modification:

Permanent clarifications to laboratory-based Quality Control (QC) sample analysis. The purpose of the attached is to standardize the frequency of analysis and procedures for interpretation of the results for laboratory-based Quality Control (QC) samples for TEM analyses (all media).

Reason for Modification:

This modification is needed to standardize the frequency with which different types of QC samples are prepared in different laboratories in the program, and to ensure that all results are evaluated in accord with a standard set of criteria.

Potential Implications of this Modification:

There are no potential negative implications resulting from this standardization of QC procedures.

Laboratory Applicability (circle one): All

Individual: _____

Duration of Modification (circle one):

Temporary Date(s): _____

Analytical Batch ID: _____

Temporary Modification Forms – Attach legible copies of approved form w/ all associated raw data packages

Permanent

(complete Proposed Modification Section)

Effective Date: 8/26/03 (insert based on date of final approval)

Permanent Modification Forms – Maintain legible copies of approved form in a binder that can be accessed by analysts.

Proposed Modification to Method (attach additional sheets if necessary; state section and page numbers of Method when applicable):

Technical Review: W.J. Brattin
(Laboratory Manager or designate)

Date: 8/26/03

Project Review and Approval: Mark [Signature]
(Volpe: Project Technical Lead or designate)

Date: 8/27/03

Approved By: Jae [Signature]
(USEPA: Project Chemist or designate)

Date: 8/26/03

Frequency

The frequency for laboratory-based QC samples for TEM analyses (all media combined) shall be as follows:

QC Sample Type	Frequency
Lab blank	4%
Recount same	1%
Recount different	2.5%
Reprep	1%
Verified analysis	1%
Interlab	0.5%
Total	10%

Each laboratory should prepare and analyze lab blanks, recount (same, different and verified), and reprep samples selected at random in accord with this table. Samples for interlab comparisons will be designated on the COC sheets accompanying the samples.

Procedure for Evaluating QC Samples and Responses to Exceptions

The procedure for evaluating QC sample results varies depending on sample type. These procedures are presented below.

Note: the procedures for evaluating QC samples presented below are based in part on professional judgement and experience at the site to date. These procedures and rules for interpretation may be revised as more data are collected.

Lab Blanks

There shall be no asbestos structure of any type detected in an analysis of 10 grid openings on any lab blank. If one or more asbestos structures are detected, the laboratory shall immediately investigate the source of the contamination and take immediate steps to eliminate the source of contamination.

Re-Analysis.

All re-analysis samples (same, different, interlab, and verified) will be evaluated by comparing the raw data sheets prepared by each analyst. Note that the raw data for samples must include sketches for both the initial and QC reanalysis, as described in modification LB-000030. The following criteria will be used to identify cases where results are concordant (in agreement) or discordant (not in agreement). These criteria were established by microscopists experienced in the analysis of Libby amphibole asbestos, and serve as an initial attempt at review criteria developed using their professional experience. As the database continues to grow and we learn more, these criteria may be revisited and revised. Changes to the criteria will be accompanied by scientific justification to support the change.

Measurement parameter	Concordance Rule
Number of asbestos structures within each grid opening	For grid openings with 10 or fewer structures, counts must match exactly. For grid openings with more than 10 structures, counts must be within 10%.
Asbestos class of structure (LA, OA, C)	Must agree 100% on chrysotile vs amphibole. For assignment of amphiboles to LA or OA bins, must agree on at least 90% of all amphibole structures.
Structure length	For fibers and bundles, must agree within 0.5 um or 10% (whichever is less stringent) For clusters and matrices, must agree within 1 um or 20% (whichever is less stringent)
Structure width	For fibers and bundles, must agree within 0.5 um or 20% (whichever is less stringent). For clusters and matrices, there is no quantitative rule for concordance.

Whenever a recount occurs in which there is one or more discordance, the sample will undergo verified analysis as described by NIST (1994), and the senior laboratory analyst will use the results of the validated analysis to determine the basis of the discordance, and will then take appropriate corrective action (e.g., re-training in counting rules, quantification of size, identification of types, etc). Whichever analytical result is determined to be correct will be identified with the word "Confirmed" in the sample comment field of the electronic data reporting sheet. In the special case where the original and the reanalysis are both determined to have one or more errors, a third electronic data report will be prepared that contains the correct results. This will be identified as QA Type = "Reconciliation". The laboratory should maintain records of all cases of discordant results and of actions taken to address any problems, in accord with the usual procedures and requirements of NVLAP. In addition, each laboratory should notify the CDM Laboratory Manager of any significant exceptions and corrective actions through a job-specific (temporary) modification form. The CDM Lab Manager will ensure that appropriate Volpe and EPA representatives are notified accordingly.

Re-Preparation.

Re-preparation samples will be evaluated by comparing the total counts for the original and the re-preparation samples. In order to be ranked as concordant, the results must not be statistically different from each other at the 90% confidence interval, tested using the statistical procedure documented in Attachment 1. Whenever an exception is identified, a senior analyst shall determine the basis of the discordant results, and if it is judged to be related to laboratory procedures (as opposed to unavoidable variability in the sample), the laboratory shall then take appropriate corrective action (e.g., re-training in sample and filter preparation, counting rules, quantification of size, identification of types, etc).

Program-Wide Goals

While each lab shall monitor the results of the QC samples analyzed within their lab and shall take actions as described above, the overall performance of the program shall be monitored by assembling summary statistics on QC samples, combining data within and across laboratories. The program-wide goals shall be interpreted as follows:

Sample Type	Metric	Program-Wide Criteria		
		Good	Acceptable	Poor
Lab Blanks	% with ≥ 1 asbestos structures	0% - 0.1%	0.2% - 0.5%	>0.5%
Recount samples	Concordance on count	>95%	85-95%	<85%
	Concordance on type (Chrys vs amphibole)	>99%	95%-99%	<95%
	Concordance on length	>90%	80%-90%	<80%
	Concordance on width	>90%	80%-90%	<80%
Reprep	Concordance on count	>95%	90-95%	<90%

As the database continues to grow and we learn more, these project-wide goals may be revisited and revised. Changes to the project-wide goals will be accompanied by appropriate justification to support the change.

REFERENCES

NIST. 1994. Airborne Asbestos Method: Standard Test method for Verified Analysis of Asbestos by Transmission Electron Microscopy - Version 2.0. National Institute of Standards and Technology, Washington DC. NISTIR 5351. March 1994.

Nelson W. 1982. Applied Life Data Analysis. John Wiley & Sons, New York. pp 438-446.

ATTACHMENT 1

STATISTICAL COMPARISON OF TWO POISSON RATES

1.0 INTRODUCTION

An important part of the Quality Control plan for this project is the re-preparation and re-analysis of a number of TEM grids for quantification of asbestos fiber concentrations in environmental media (air, dust, water, soil). Because of random variation, it is not expected that results from re-preparations samples should be identical. This appendix presents the statistical method for comparing two measurements and determining whether they are statistically different or not.

2.0 STATISTICAL METHOD

This method is taken from the textbook entitled "Applied Life Data Analysis" (Nelson 1982). Input values required for the test are as follows:

- Y1 = Fiber count in first evaluation
- t1 = Number of grid openings in first evaluation
- Y2 = Fiber count in second evaluation
- t2 = Number of grid openings in second evaluation

The test is performed by following the following steps:

Step 1:

Calculate $Y = (Y1 + Y2) / 2$
 $t = (t1 + t2) / 2$
 $\lambda = Y / t$

Step 2:

Calculate $Q = (Y1 - Y)^2 / (\lambda \cdot t1) + (Y2 - Y)^2 / (\lambda \cdot t2)$

Step 3:

Compare Q to the critical value of CHISQ(1- α ,1) from the following table:

Alpha	CHISQ(1- α ,1)
0.05	3.841
0.10	2.706
0.20	1.642
0.30	1.074

If Q is less than or equal to CHISQ(1- α ,1), conclude that the two results are not statistically different at the 100(1- α)% confidence level.

If Q is greater than CHISQ(1- α ,1), conclude that the two results are statistically different at the 100(1- α)% confidence level.



Mary
Goldade/EPR/R8/US
EPA/US@EPA

To: Jim Christiansen/EPR/R8/USEPA/US@EPA
cc:
Subject: Flyway Soil QC samples

09/15/03 04:03 PM

Jim,
Wanted to give you some notes on the soil QC samples we discussed this morning:

PCBs. Field QC. PE samples should be provided at a rate of 5%. EPA offers these free of charge.

Other QC samples/QA requirements must be run/followed as specified in the method 8082 (not 8081 as I said this am) including (for example): blanks, LCS, MS/MSD pair, surrogates, initial calibrations, continuing calibration verification samples, etc.

Confirmation soils (PLM). Field QC. None at this time, because: Libby PE samples in soil are not available at this time.

Other QC samples/QA requirements must be run/followed as specified in the method NIOSH 9002 including (for example): blind reference checks, etc.



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